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Amendments to Claims

Please amend the claims as follows:

1 (currently amended). A method of detecting double-talk and path changes in an echo cancellation system including a Least Mean Squares adaptive filter for generating an echo cancellation signal, comprising:

generating a cross correlation matrix

$$R = E[XX^T]$$

where E is the statistical expectation operator and

$$X = \begin{bmatrix} X_0 \\ X_1 \end{bmatrix} \text{ where}$$

X₀ is an echo path signal and X₁ is an estimated echo signal generated by said adaptive filter; and
performing a matrix operation on said matrix R to generate a characteristic value
determinative of the correlation between said signals X₀ and X₁; and
correlation-based matrix of signals in said echo cancellation system; and
analyzing said correlation-based matrix to identify detecting the presence of double-
talk and path changes occurring in said system from said characteristic value.

2 (canceled).

3 (currently amended). A method as claimed in claim 21, wherein said characteristic value is the determinant ~~a determinant of said matrix is used to detect said double-talk and path changes.~~

4 (currently amended). A method as claimed in claim 3, wherein said double-talk and path changes are inferred when ~~the value of said determinant~~ passes predetermined threshold values.

5 (currently amended). A method as claimed in claim 21, wherein said characteristic value comprises eigendecompositions of said matrix ~~are used to detect said double-talk and path changes.~~

6 (currently amended). A method as claimed in claim 21, wherein said characteristic value comprises single valued decompositions of said matrix ~~are used to detect said double-talk and path changes.~~

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7(currently amended). A method as claimed in claim 2, wherein said characteristic value comprises condition numbers of said matrix ~~are used to detect said double-talk and path changes.~~

8(canceled).

9(canceled).

10(currently amended). A method as claimed in claim 91, wherein said LMS-Least Mean Square filter implements a normalized-LMS algorithm.

11(currently amended). A method as claimed in claim 1, wherein the elements of said ~~correlation-based matrix~~ are generated in the time domain.

12(original). A method as claimed in claim 1, wherein the elements of said correlation-based matrix are generated in the frequency domain.

13 (canceled)

14 (canceled)

15 (canceled)

16 (canceled)

17 (canceled)

18 (canceled)

19 (canceled)

20 (canceled)

21 (canceled)

22 (canceled)